AMENDMENTS TO THE CLAIMS

1. (previously amended) A neutron detection device comprising:

an active semiconductor layer including a plurality of charge-sensitive cells:

a first neutron conversion layer capable of converting neutrons into charged particles, wherein said neutron conversion layer is located in close proximity to the active semiconductor layer; and

a second neutron conversion layer formed in proximity to the active semiconductor layer.

2. (previously amended) A neutron detection device as claimed in claim 1, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layers.

3. (previously amended) A neutron detection device as claimed in claim 1, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layers.

4. (original) A neutron detection device as claimed in claim 3, wherein the barrier layer comprises silicon nitride.

5. (original) A neutron detection device as claimed in claim 1, wherein the neutron conversion layer comprises boron.

6. (previously amended) A neutron detection device as claimed in claim 1, wherein the neutron conversion layer comprises boron-containing glass.

7. (previously amended) A neutron detection device as claimed in claim 6, wherein the boron-containing glass includes 5% boron.

8. (original) A neutron detection device as claimed in claim 1, wherein the neutron conversion layer includes lithium.

9. (canceled) A neutron detection device as claimed in claim 1, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.

10. (previously amended) A neutron detection device as claimed in claim 1, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.

11. (original) A method of manufacturing a neutron detector from a memory device, wherein the memory device includes an layer active semiconductor layer, a base substrate and an insulating layer between the active semiconductor layer and the base substrate, the method comprising:

removing the base substrate layer from a memory device to expose the insulating layer: and

forming a neutron conversion layer on the insulating layer.

12. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 11, further comprising forming a barrier layer on the insulating layer prior to forming the neutron conversion layer.

13. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 11, further comprising forming a second neutron conversion layer on the neutron conversion layer.

14. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 11, wherein the neutron conversion layer comprises boron.

15. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 13, wherein the neutron conversion layer formed on the insulating layer comprises boron and the second neutron conversion layer comprises lithium.

16. (original) A method of manufacturing a neutron detector from a memory device, wherein the memory device includes an active semiconductor layer, a base substrate and an insulating layer between the active semiconductor layer and the base substrate, the method comprising:

removing the base substrate layer and the insulating layer from the memory device; and

forming a neutron conversion layer on the active semiconductor layer.

17. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 16, further comprising forming a barrier layer on the active semiconductor layer prior to forming the neutron conversion layer.

18. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 16, further comprising forming a second neutron conversion layer on the neutron conversion layer formed on the active semiconductor layer.

19. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 16, wherein the neutron conversion layer comprises boron.

20. (original) A method of manufacturing a neutron detector from a memory device as claimed in claim 18, wherein the neutron conversion layer formed on the insulating layer comprises boron and the second insulating layer comprises lithium.

21. (previously presented) A neutron detection device comprising:

an active semiconductor layer including a plurality of charge-sensitive cells; and

a neutron conversion layer located under the active semiconductor layer.

22. (previously presented) A neutron detection device as claimed in claim 21, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layer.

23. (previously presented) A neutron detection device as claimed in claim 21, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layer.

24. (previously presented) A neutron detection device as claimed in claim 23, wherein the barrier layer comprises silicon nitride.

25. (previously presented) A neutron detection device as claimed in claim 21, wherein the neutron conversion layer comprises boron.

26. (previously presented) A neutron detection device as claimed in claim 21, wherein the neutron conversion layer comprises boron-containing glass.

27. (previously presented) A neutron detection device as claimed in claim 26, wherein the boron-containing glass includes 5% boron.

28. (previously presented) A neutron detection device as claimed in claim 21, wherein the neutron conversion layer includes lithium.

29. (previously presented) A neutron detection device as claimed in claim 21, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.

30. (previously presented) A neutron detection device as claimed in claim 29, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.

31. (previously amended) A neutron detection device comprising:

an active semiconductor layer including a plurality of charge-sensitive cells;

a first neutron conversion layer adjacent to the active semiconductor layer; and

a second neutron conversion layer formed in close proximity to the active semiconductor layer.

32. (previously amended) A neutron detection device comprising an active semiconductor layer including a plurality of charge-sensitive cells;

a first neutron conversion layer;

a second neutron conversion layer; and

an insulating layer located between the active semiconductor layer and the neutron conversion layers.

33. (previously amended) A neutron detection device comprising an active semiconductor layer including a plurality of charge-sensitive cells;

a first neutron conversion layer;

a second neutron conversion layer; and

a barrier layer located between the neutron conversion layer and the active semiconductor layers.

34. (previously presented) A neutron detection device as claimed in claim 33, wherein the barrier layer comprises silicon nitride.

35. (Previously presented) A neutron detection device as claimed in claim 31, wherein the neutron conversion layer comprises boron.

36. (Previously presented) A neutron detection device as claimed in claim 31, wherein the neutron conversion layer comprises boron-containing glass.

37. (Previously presented) A neutron detection device as claimed in claim 36, wherein the boron-containing glass includes 5% boron.

38. (Previously presented) A neutron detection device as claimed in claim 31, wherein the neutron conversion layer includes lithium.

39. (canceled) A neutron detection device as claimed in claim 31, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.

40. (previously amended) A neutron detection device as claimed in claim 31, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.

41. (previously amended) A neutron detection device comprising:

an active semiconductor layer including a plurality of charge-sensitive cells:

a first neutron conversion layer in contact with the active semiconductor layer; and

a second neutron conversion layer formed in proximity to the active semiconductor layer.

42. (canceled) A neutron detection device as claimed in claim 41, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layers.

43. (canceled) A neutron detection device as claimed in claim 41, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layers.

44. (canceled) A neutron detection device as claimed in claim 43, wherein the barrier layer comprises silicon nitride.

45. (Previously presented) A neutron detection device as claimed in claim 41, wherein the neutron conversion layer comprises boron.

46. (Previously presented) A neutron detection device as claimed in claim 41, wherein the neutron conversion layer comprises boron-containing glass.

47. (Previously presented) A neutron detection device as claimed in claim 46, wherein the boron-containing glass includes 5% boron.

48. (previously presented) A neutron detection device as claimed in claim 41, wherein the neutron conversion layer includes lithium.

49. (canceled) A neutron detection device as claimed in claim 41, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.

50. (previously amended) A neutron detection device as claimed in claim 41, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.

51. (currently amended) A neutron detection device comprising:

an active semiconductor layer including a plurality of charge-sensitive cells; ~~and~~

a neutron conversion layer located within a distance from the active semiconductor layer no greater than the range of neutron reactant product particles traversing the distance; and

a second neutron conversion layer formed in proximity to the active semiconductor layer.

52. (currently amended) A neutron detection device as claimed in claim 51, further comprising an insulating layer located between the active semiconductor layer and the neutron conversion layers.

53. (Currently amended) A neutron detection device as claimed in claim 51, further comprising a barrier layer located between the neutron conversion layer and the active semiconductor layers.

54. (Previously presented) A neutron detection device as claimed in claim 53, wherein the barrier layer comprises silicon nitride.

55. (Previously presented) A neutron detection device as claimed in claim 51, wherein the neutron conversion layer comprises boron.

56. (Previously presented) A neutron detection device as claimed in claim 51, wherein the neutron conversion layer comprises boron-containing glass.

57. (Previously presented) A neutron detection device as claimed in claim 56, wherein the boron-containing glass includes 5% boron.

58. (Previously presented) A neutron detection device as claimed in claim 51, wherein the neutron conversion layer includes lithium.

59. (canceled) A neutron detection device as claimed in claim 51, further comprising a second neutron conversion layer formed in proximity to the active semiconductor layer.

60. (currently amended) A neutron detection device as claimed in claim 51 ~~59~~, wherein one of the neutron conversion layers comprises boron and the other of the neutron conversion layers comprises lithium.